

enhance the function of the known anti-hyperglycemic agent. In addition to anti-hyperglycemic agents, the known agent may be an anti-diabetic agent or an anti-obesity agent.

5 In yet another specific embodiment, the present invention provides a method of using the pharmaceutical compositions to alter plasma cholesterol. For example, the compositions may be administered to an animal to decrease plasma cholesterol.

10 Another embodiment of the present invention provides a method of screening for an active compound from a berry from a plant of the *Panax* genus comprising: obtaining berry extract; and analyzing the extract for the active compound. Specifically, in some embodiments, the berry may be from the ginseng species *Panax ginseng* or *Panax quinquefolius*. After analyzing the extract for the active compound, the compound may be isolated, identified and synthesized using standard procedures that are well known to those in the art.

15 In specific embodiments, the extract may comprise at least one ginsenoside, for example, Rg1, Re, Rb1, Rc, Rb2 or Rd. Specifically, the ginsenoside is Re. Also contemplated is that the extract may comprise non-ginsenoside components or may be ginsenoside free.

20 In certain embodiments of the present invention, analyzing the berry extract may comprise separation of the extract into fractions by known mechanisms. More particularly, for example, separation of the berry extract may be accomplished by chromatography.

25 In yet a further specific embodiment, the method of screening for an active compound may further comprise administering the fractions obtained by chromatography separation to an animal suffering from hyperglycemia. After a fraction is administered to an animal, the method may further comprise measuring blood glucose, wherein a decrease in blood glucose indicates that the fraction contains an active compound. It is contemplated that the active compound may comprise a ginsenoside. Also, the active

compound may comprise at least two ginsenosides. Yet further, it is contemplated that the active compound may comprise a non-ginsenoside component or may be ginsenoside free or may comprise a combination of a ginsenoside and a non-ginsenoside component.

Another specific embodiment of the present invention includes pharmaceutical compositions comprising an anti-hyperglycemic agent. The agent may comprise an active compound obtained by screening ginseng berry extract and admixing the agent with pharmaceutical compositions.

In certain embodiments of the present invention, a method of treating an animal suffering from non-insulin dependent diabetes is provided using an active compound from a *Panax ginseng* berry or from a *Panax quinquefolius* berry. The active compound may be isolated from *Panax ginseng* berry or a *Panax quinquefolius* berry extract. It is also contemplated that the active compound may be produced synthetically. Yet further, the active compound may be comprised in a pharmaceutically acceptable carrier.

As used herein the specification, “a” or “an” may mean one or more. As used herein in the claim(s), when used in conjunction with the word “comprising”, the words “a” or “an” may mean one or more than one. As used herein “another” may mean at least a second or more.

Other objects, features and advantages of the present invention will become apparent from the following detailed description. It should be understood, however, that the detailed description and the specific examples, while indicating preferred embodiments of the invention, are given by way of illustration only, since various changes and modifications within the scope of the invention will become apparent to those skilled in the art from this detailed description.

BRIEF DESCRIPTION OF THE DRAWINGS

FIG. 1: Chemical structures of ginsenoside Re, and Rb2 are shown.

FIG. 2: Percentage weight of six ginsenosides in fresh *Panax ginseng* berry vs. root using HPLC analysis.

FIG. 3A and FIG. 3B: Effect of *Panax ginseng* berry extract on fasting blood glucose concentrations in adult *ob/ob* mice (FIG. 3B) and lean littermates (FIG. 3A). On Day 0, glucose levels are higher in *ob/ob* mice compared to lean mice. Glucose levels decrease significantly in 150 mg/kg *Panax ginseng* berry extract-treated *ob/ob* mice on Day 5 and Day 12.

FIG. 4: Effect of *Panax ginseng* berry extract on fasting blood glucose levels in adult *db/db* mice. The glucose levels decreases significantly in 150 mg/kg extract-treated animals on Day 5 and Day 12.

FIG. 5: Effect of *Panax ginseng* berry extract on fasting blood glucose levels in adult lean littermates. Although there is a trend towards reduction in fasting blood glucose levels after the extract treatment, the glucose level does not decrease significantly on Day 12 compared to the vehicle-treated mice.

FIG. 6: Effects of *Panax quinquefolius* berry extract on blood glucose concentrations in *ob/ob* mice. 150 mg/kg = American ginseng berry extracts 150 mg/kg. In both vehicle group and treatment group, mean blood glucose levels on Day 0 were normalized to 100%.

FIG. 7: Dose-dependent effect of ginsenoside Re on fasting blood glucose concentrations in adult *ob/ob* mice. Compared to vehicle group, fasting glucose levels decreased significantly after 20 mg/kg ginsenoside Re treatments on Day 5 and Day 12.

FIG. 8: Effect of polysaccharides fraction from *Panax quinquefolius* berry extract on fasting blood glucose levels in adult *ob/ob* mice. The glucose levels decrease significantly in 50 mg/kg and 150 mg/kg polysaccharides -treated mice on Day 5 and Day 12.